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The Hessian Fly.

We resume our abstract of the Essay of Dr. Fitch, on the Hessian fly, at that portion of the article which treats of the remedies which have been heretofore or are now suggested, either to prevent the multiplication of the insect, or avert its ravages. As we remarked, the essay enumerates no fewer than fifteen of these remedies, some clearly founded in an erroneous notion of the natural history and habits of the insect, and wholly inefficacious, others to a greater or less extent successful. We shall mention them all,—the former as well as the latter,—in order that experiment may be directed into the right channel, and that no time or thought may be wasted on expedients that will lead to no successful result.

The author aims in the outset to caution his readers against regarding *any* measure as an entire specific. "There is," he says, "probably no such thing as sure and infallible specifies against any of the insects which invade our crops, any more than there is against those diseases which attack our persons. Still, believing this, we also believe there is no noxious insect but what, when we closely study into its habits we can invariably discover some one or more ways of opposing it, by which we can with certainty to a great extent, if not entirely, shield ourselves against its depredations. Thus it is with the insect under consideration. There is no remedy with which we can "doctor" it away—no charm with which we can say to it, "vanish, presto:" yet there are measures, which employed, will guaranty fair crops, when if not resorted to, no wheat will be gathered. Of this fact we are well convinced, both from personal observations, and the concurrent testimony of a cloud of witnesses."

He then proceeds to enumerate the following remedies. On the first we give the remarks nearly entire.

"1st. *A rich soil.*—Other things being equal, the crops on impoverished lands invariably suffer the most. Hence those on sandy soils, which retain the strength of fertilizing agents less than other soils, have in numerous instances been remarked as most severely devastated. A striking contrast, even, may very often be perceived in different parts of the same field. The summits of the knolls and ridges, situations where the soil is the most meagre, almost invariably show the greatest amount of damage; whilst the intervening hollows, to which the fertilizing matters are washed from the surrounding acclivities, sustain a comparatively slight, if at all sensible injury. Yet the latter situations are the very ones which the insects of this family are known to be most prone to frequent, being more low, shady, and damp. There can be no doubt, therefore, but the fly is as numerous in the hollows of a grain field, as upon its ridges; and that it is only in consequence of the greater fertility of the former situations that the crop there is enabled so effectually to withstand this enemy. Indeed, the farmers themselves, in districts where the fly has prevailed, have all learned from experience, that it is only upon fertile lands that it will do to sow their wheat. Hence Ezra L'Hommedieu long ago intimated that the Hessian fly on Long Island, by driving the farmers to manure their lands, instead of a curse had actually been *a blessing*. He says, "the land in Suffolk county and other parts of Long Island, was easily tilled, and by continual cropping with wheat was so reduced, that on an average not more than five or six bushels was raised to the acre. This mode of husbandry was still pursued, and although the land was gradually impoverished, the farmer found the crop, although small, more than would pay for his labor and expense. The Hessian fly put an end to this kind of husbandry, and in that respect has proved a blessing, instead of a curse; no other way being found to prevent the injury done by this insect, but by highly manuring the land." A writer in Delaware also states that the universal predilection there, was to have large rather than rich fields of wheat; that the insect was counteracting this, by com-

pelling them to cultivate less land, in order to cultivate it well; and that its tendency consequently was, to make our population more dense, by making it the interest of every man to own no more land than what he could manure highly and till carefully. We thus have, even in the devastations committed by this destroyer evident indications of that

"All partial evil, universal good,"

which is every where manifested in the works of the Supreme Architect of nature. It is doubtless the additional strength and vigor enjoyed by plants growing upon a rich soil, which enables them to withstand the depredations of this insect. Those shoots which are first sent up from a kernel of seed, are the ones which are commonly attacked and destroyed, and in an impoverished soil the seed itself thereupon perishes; whilst in a rich soil, its vitality continues, and other shoots are sent forth by it, which grow vigorously and unmolested. In the spring attack also, the weak and slender stalks growing upon a poor soil, are much more liable to become broken and fail of maturing any grain, than the large, robust, well nourished stalks of a fertile soil. Hence a rich soil enables a plant to elaborate a sufficient amount of fluids for its own sustenance, in addition to that which is abstracted from it by a few of these insects.—We therefore regard this as a primary and indispensable measure, and one which must accompany others next to be considered, in order to their full success."

2nd. *Late sowing.*—This is a remedy with which the farmers of Michigan are familiar, and not a few of them to their cost. In trying to avoid one evil, they found that they had fallen into a still greater. But this was because the sowing was too long deferred—longer than the nature of the danger to be guarded against required. In order *to be sure to be late enough*, many did not sow before the last of October, or the fore part of November; while if they had sowed between the 20th and last of September, the object aimed at would have been as well accomplished without destroying the prospects of the crop by late seeding. The careful observers who have investigated the habits of the insect, have found that few eggs are deposited after the 20th of September. Very late seeding, after all, finally fails of its end, inasmuch as after having survived the winter, the crop is precisely in the right condition to be most injured by the spring attack.

On the other hand, it is universally admitted that very early sown fields are invariably more infested in the fall than those sown later, and wherever very early sowing has been practiced, the whole force of the insect is there directed, so that unless the enemy be in prodigious swarms, contiguous fields may be sown a week or two after with comparative safety. On this point Dr. Fitch remarks:—"Just before harvest, our attention was directed to two contiguous fields of wheat in the town of Stillwater, one of which was seriously injured by the Hessian fly, whilst in the other not a solitary straw broken by the insect could be found. The only cause to which this striking contrast could be imputed, was, that the latter field had been sowed a fortnight later than the former one.—Analagous instances have often occurred to the notice of every observing person living in districts where the fly has been present. Such cases, however, must not be deemed to prove so much as they at first view appear to It is not probable that the fly had entirely ceased from depositing its eggs before the second of the above fields had become forward enough for its purposes. Had the sowing of the first field been delayed a fortnight, both fields, it is probable, would have suffered equally. The whole injury that fell upon the first field, would thus have been divided between it and its neighbor. And so in all cases, we presume that the field which is the earliest, attracts all of the insects in its immediate vicinity, and these finding all the accommodations they desire there, have no occasion for going elsewhere."

3d. *Grazing.*—Here, again, ignorance of the habits of the insect has led to a serious practical error. Where grazing has been resorted to, it has not usually been done until the field has exhibited indications of injury, and this has been too late for the effectual use of preventive means. At this stage, the worms were attached to the wheat stalk just below the surface of the ground, where they were, for the most part, out of the reach of grazing animals. With a knowledge of the fact that the insect generally begins to lay its eggs upon the surface of the leaf as soon as two or three blades have put forth, that the eggs hatch in four or five days, and that the worm which is evolved immediately crawls down to its position just above the lower joint, where it remains till the ensuing

spring,—a different course would have suggested itself. "If grazing in autumn," says Dr. Fitch, "be omitted till after the eggs are hatched, and the worms have descended to the root, it can obviously be of little or no service. When, therefore, an attack of the fly is feared, as the exact time of the deposition of the eggs is somewhat variable in different seasons, it will be necessary to watch the young wheat, as soon as two or three blades from each root appear; and if the fly is discovered profusely depositing its eggs, sheep or other stock should at once be turned upon it, in such numbers, if possible, as to eat down the crop in a few days. The eggs will thus be destroyed, and the favorite nidus of the fly for continuing this deposite, will be effectually broken up: it will thus be compelled to resort to other quarters. The same process may also be repeated in the spring, if found necessary. No injury to the crop need be apprehended from its being thus grazed down, if the soil is of due fertility—it soon entirely recovers from this operation. Moreover, if the soil is poor and impoverished, the fly will be sure to injure it far more than what the sheep will do. We cannot, therefore, but regard this as a most judicious and important measure, if seasonably resorted to. The intelligent wool grower will scarcely require to be informed, that sheep taken from their ordinary walks, should at first remain upon the rank feed of the wheat field but an hour or two of a day."

4th. *The roller.*—Passing over the field with a heavy roller at the time when the fly is depositing its eggs, is recommended by many writers. The pressure of the roller is supposed either to crush the eggs, or dislodge them from the leaf, so that, if hatched, the worm is unable to find its way into the sheath of the young plant. In order to be efficacious, this remedy, like the last, must be resorted to early, and the field must obviously be so smooth and free from stones, that almost every plant will receive a firm pressure by the operation. Some farmers practice both rolling and grazing, and as is thought, with excellent effect.

5th. *Mowing.*—This is recommended with a view to exterminate the second or spring brood, which is concealed within the bases of the leaves in the upper part of the stalk. "In these cases," says the essay, "where the worms are discovered in the month of May, to be fearfully numerous at the joints of the young stalks, there can be little doubt but that on smooth grounds the scythe may be so used as to take off almost every spear below where the larvae are lodged; and that thus a second growth of stalks will be produced, quite free from these depredators."

It should, however, be remarked, that the liability to rust from thus retarding the ripening of the crop, must present this remedy as a choice of evils, while if the mowing be deferred till the heads are formed and liable to be cut off by the scythe, the second growth will be shorter and less productive.

(*To be continued.*)

Clover.

Its value to the farmer, mode of cultivation, &c.

BY J. F. C.

Although the value of clover is in some measure appreciated, and its cultivation somewhat extensive, yet they are far less so than its importance demands. It is valuable to the farmer for three important purposes—to feed his stock, fertilize his land, and to fill his purse. His cattle thrive upon it when green, as a pasture in the summer, and in the stall, when fed with the hay in the winter; his wheat and corn thrive upon it when buried and decomposing in the soil, and his purse increases with the increase of his cattle and his crops. It is the very basis of good farming on lands susceptible of alternate husbandry. A good clover lay, as estimated by experienced agriculturists, is said to be worth as much as five tons of barn-yard manure to the acre. Why, then, it is not more generally cultivated in Michigan, especially on our sand and gravelly openings, (which of all lands, are best adapted to, and most need its use,) is to me a wonder, unless it is because its value is not properly appreciated, or known. Entertaining these views, I had thought that a few suggestions in regard to its use and culture, might not be wholly uninteresting to the readers of the Michigan Farmer.

Botanists enumerate a great variety of kinds, but those most common in use are usually denominated as three kinds—the large, middle, and small, or early June red clover. Of these kinds, I prefer the middle kind, for the following reasons: that it affords a better quality of hay, the stems not being so large, with more leaves to the same bulk, yet with sufficient growth to afford a good burthen to the acre; being an earlier variety, it admits of taking a crop of hay and a crop of seed the same season, which is not a small item in its favor—the crop of seed at present prices, varying in value from $15 to $30 per acre.

There are three errors in the management of clover, which I design briefly to notice.

1st. *In seeding, too little seed is used.* The object is, to procure cheap food for animals and plants. No crop surpasses it in the quantity which it affords of these, with the same exhaustion of the fertility of the soil. One farmer sows four or six pounds of seed to the acre, and gets in return, a thin and coarse crop of grass, whilst the vacancies are left to be filled up with sorrel or other noxious weeds. Another sows 10 or 15 pounds, and obtains double the crop of the other, at a trifling additional expense of not to exceed a dollar per acre for seed, while his land is doubly benefitted by being kept clean from weeds, and by the green crop to be turned under. From 10 to 15 pounds seed to the acre should be sown, whether the object be for hay or pasture, or to be turned in for the benefit of the soil. The product will, in some measure, be in ratio to the amount of seed sown, and the advantages of heavy stocking, both in the hay and to the soil, will far exceed the cost of the extra seed, of which every farmer ought to raise a supply at least for his own use.

The best time to seed with crops of small grain, is in the spring. The seed on light, dry, warm land, should be sown before the second time harrowing, and cross harrowed after being sown with a light harrow, and then rolled down with a roller. This method, in some measure, obviates the danger of the young and tender plant being scorched to death by our hot summer suns, which is the chief difficulty of obtaining a good stock with clover, on light sandy soils. The practice of some is, to sow with wheat in the fall; but in this method, there is danger of its being winter killed. Others sow it in the spring, on the wheat; but this method on the kind of soil above mentioned, is an uncertain way, or rather *it is a certain way* of losing the seed, as it will not obtain depth of root sufficient to stand the hot suns and drought of June and July, in ordinary seasons. Another way which I have never tried, but which of late is highly recommended by some, is to seed with corn after the last time of dressing, the system of level culture being adopted, (the only right right way,) and covered by the cultivator or corn harrow. This method, I am inclined to think, is perhaps the surest mode of stocking, as the corn affords a protection from the sun, and usually the driest and hottest weather of the season is past before the clover is advanced enough to be injured by it; while at the same time, it will obtain hardiness enough to withstand the winter frosts. To succeed well with clover, gypsum should be sown each year, from one to two bushels to the acre.

2d. *Clover lays are permitted to remain too long before they are brought under the plough.* The clover, as I think, is a triennial plant, and if allowed to remain four or five years before ploughing, the advantages to the soil as a green crop, are nearly lost. 'Tis true, if some portion of it is suffered to ripen each year, new plants will spring up to succeed those going to decay; but I should recommend taking it up at least as soon as the third year. The action of clover in improving the soil is not only in supplying a large amount of vegetable matter, but it acts mechanically. Its tap roots penetrate the soil, and as they decay, render it friable and permeable to heat and moisture.

3d. *The common mode of curing clover hay is bad.* The common practice of spreading and letting it lie until entirely dry, causes most of the leaves and blossoms to crumble off before the stalk is sufficiently dry, and where lying thick, it must remain out over night in the dew, and no kind of grass is injured so easily by wet and drying as clover. The plan I would recommend is, to cut and spread it, and as soon as thoroughly wilted, to rake and put it in cocks, and if the weather is favorable, by the second day it will by its sweating and handling over, in drawing, be sufficiently cured, and at the same time, retain the leaves and blossoms, together with its bright green color and flavor.—For hay, clover should be cut as soon as about half of the blossoms have turned brown. When an after crop of seed is intended, it should, in this latitude, be cut from the 20th to the 25th of June.

One great objection of the farmer to sowing more clover, and more frequently turning it in, is the cost of seed. This, as I before observed, after the first season of sowing, every farmer ought to raise his own. If a hulling machine is not at hand to clean it, it is even better in the chaff, when intended for his own use, (as I have proved by experience,) for the chaff or hull is a sort of protection to the young and tender root at its first start. It is a piece of folly for the farmers of Michigan to pay such a tribute to the State of Ohio for clover seed, when we have every facility that they have, for raising our own, and even for exportation. I should not, however, recommend taking more than one crop in succession, from the same land, as I think it would be running the land rather hard, especially if the first crop in the season is cut for hay. Lastly, though not *leastly*, by the use of clover, and by it alone, and a proper rotation of crops, the farmer is enabled to dispense with the naked summer fallow, and at the same time keep up the fertility of his soil, thus enabling him to nearly double his profits, without increasing his expenses in cultivation.

Kent County, March 12, 1847.

DONATION FOR AN AGRICULTURAL SCHOOL.—The N. Y. Farmer & Mechanic says, "The Hon. William Williams, President of the Senate of Maryland, has generously offered a donation of 100 or 150 acres of land, in aid of establishing a proper Agricultural School."

Plaster.

Its appropriate uses, and best modes and time of application.

The beneficial effects of plaster as a manure for dry, sandy soils, are generally conceded, yet if an opinion may be formed from its limited use, they are by no means, fully appreciated. When we say that every barrel of good plaster judiciously applied, will commonly produce from five to ten dollars advantage on such soils, we but express the deliberate conviction of those whose judgment has been formed from experience in its use. If this is true, it follows that although the article is dear among us, in comparison with its price in the eastern markets, yet it is a most valuable and cheap manure, and one not to be dispensed with on any farm of suitable soil, which has been brought into a state of cultivation adapted to its use.

There is, as is well known, a wide diversity in its benefits, when applied to different crops; some having their product doubled, and others but slightly, if at all, increased through its agency. This is accounted for by chemists, from the fact that some plants imbibe and incorporate in their substance, a larger quantity of plaster than others, analysis having shown that those plants most benefitted by its use, contain the largest quantity in their ashes. The plants to which it is most serviceable, are clover, Indian corn, lucern, and other broad leaved crops; those requiring it less, are the cereals, wheat, oats, rye, &c. In some cases, however, it has been thought to cause a materially increased product of wheat.

Plaster consists of

Sulphuric acid, (oil of vitriol,)	32 parts	}
Lime,	30 "	} in 100.
Water,	33 "	}

The first named substance, sulphuric acid, is one of eleven which are present in the composition of all cultivated plants, and, of course, must exist in greater or less proportion in every fertile soil. It is commonly found in combination with lime and water, in the form of plaster. In some soils, this is naturally in sufficient abundance for the uses of any plants; in others, there is enough for those plants only which require it least. Few soils contain it so largely, that no benefit ever results from its use, and few are entirely destitute of it. In the absence of an analysis of the soil, experiment will, in most cases, determine whether there is a deficiency. If clover, and other plants known to contain it most largely, are greatly improved by its application, there the inference is safe that the soil contains it in insufficient quantity. If benefit is not experienced in such cases, the want of effect may result from an abundant supply; but this inference is not equally certain with the former, since the cause may lie in one of the circumstances which will be presently suggested.

No plant can avail itself of this or any other fertilizer which the soil may contain, except it be in a state of solution, and plaster is very sparingly soluble in water, requiring upwards of 400 parts of water to dissolve one part of plaster. Hence it is obvious that plaster can produce no benefit unless accompanied with moisture, and hence those who apply it in a drouth fail, for a time, to realize any advantage. Its effects as a fertilizer, do not proceed, as some suppose, *from its attraction for moisture;* for in an experiment by C. W. Johnson, 1,000 parts, previously dried, when exposed to air saturated with moisture for three hours, only gained nine parts, while under the same circumstances, a good arable soil gained fourteen parts, and when compared with other manures, the disproportion was still greater.

The entire benefit of the application of plaster in any considerable quantity, is not exhausted in one season. Its decomposition being slow, where a large dressing, (500 lbs., to the acre, for instance,) is applied, there may be sufficient for the uses of the soil for several years, and a repetition of the sowing meanwhile, would be found to produce no additional yield. Though necessary, this fertilizer is necessary only in small quantities, and the soil seems to act on the sensible adage—"enough is as good as a feast," or a surfeit—it is sometimes better. Economy, therefore, is best consulted, and the greatest advantage secured from a given quantity, by sowing little and often, as the wants of each particular crop may require. Those who have been accustomed to sow large quantities where plaster was cheap, have been surprised at the results obtained from the use of even a half bushel on an acre of clover.

According to Liebig, the chief effect of plaster as a fertilizer, is due to its attraction for ammonia, and forming, in combination with it, sulphate of ammonia, in which state it is im-

bibed by plants. From this property, four lbs., of gypsum, he says, will add one hundred lbs., to the produce of the meadow. Thus plaster arrests and appropriates for the food of the crop on which it is sown, the great fertilizer with which the air is stored, the product of the decay of organized bodies. This unseen agent, which in one of its combinations, contributes largely to form the bread we eat, floats freely for the use of all, but is arrested and made to fertilize the field of the skillful farmer, at the expense of his less provident neighbor.

In the application of plaster to clover, very much depends upon its being made at the best time. *This is early in the spring, before the clover begins to grow.* This is not matter of opinion merely, but rests on the authority and practice of the best farmers who have been conversant with its use, Judge Buell, among the number. We have reason to think there has been a common error among many in Michigan, on this point. The sowing has been deferred too late—the dry season has set in, and the plaster has remained for the most part unaltered on the surface of the plants and soil. If sown shortly after the frost has left the ground, the dissolved plaster finds ready access to the roots through the open soil. On a level field, where the water of the dissolving snows remains and sinks into the surface, we doubt not it would work well to sow on the latest spring snows.

A very economical use of plaster, is to intermix with seeds in a wet state. Clover seed, moistened with rain water, or the liquid drainings of the barn-yard, and dried with plaster, will vegetate sooner and more vigorously. So with the various kinds of grain. In preparing seed potatoes, it is found of utility, after cutting, to place them in a barrel, pour on half a peck of plaster to a barrel of potatoes, and shake them till the plaster has worked to the bottom, coating the cut side. Potatoes derive from this treatment, increased vigor of growth, and are less likely to be affected by the rot.

On wet lands, plaster is thrown away. It is also of comparatively little utility on heavy clays, and on oak openings, before they have become somewhat subdued by cultivation. On no soils can it be expected long to supply the absence of all other manures, since of all the mineral ingredients that enter into the constitution of plants, it affords but two. But as a means of stimulating the productive properties of a soil to vigorous action, and thus furnishing a large body of vegetable matter to sustain and enrich it, plaster, in its appropriate sphere, is perhaps without a rival.

Remarks on the Diseases of Fruit Trees.

BY A——.

The Blight in the Pear.

The disease of the plum referred to in my last communication, though a serious evil against which every fruit grower will have to contend, is, nevertheless, of small moment, compared with the diseases to which other kinds of fruit are subject, as the remedy is both simple and efficacious. The most formidable disease to which fruit trees are liable, is that of the blight in the pear and quince. Next to the apple, the pear is unquestionably the most important fruit in a northern latitude. As a dessert fruit, it surpasses the apple; and as a market fruit, it is more valuable than the peach, although inferior to it in delicacy of flavor, and were it not for the threatening aspect which this disease is assuming in some portions of this state, the pear would, in process of time, become a source of no inconsiderable profit to the farmer. There are two theories respecting the origin of the disease of the pear, making in fact two distinct diseases:—the one, that it is caused by an insect; and the other, by the sudden freezing and thawing of the sap, causing the sap vessels to burst. Respecting the first, I would remark, that although I have been somewhat familiar with the blight in the pear for more than twenty years, I have never discovered, after repeated examinations, any traces of the insect described by Prof. Peck, under the name of *Scolytus pyri*. The insect, as is supposed, deposits its egg sometime in July or August, either behind or below a bud. In the following spring, the grub or larva makes its way to the centre of the limb, girdling internally a portion of the sap vessels, cutting off the supply of fluid from the roots at a time when the greatest supply is needed. The growth and vitality of the limbs being checked, they finally perish. Such, in brief, is the theory respecting the insect blight.

Whatever may be the facts concerning this form of the disease in the eastern states, I am confident that no traces of it can be found here. Last summer, quite a number of my quince trees were attacked with the blight; I cut off the affected branches and examined them minutely, but could find no indications whatever of the work of insects, except in two large branches. On opening these, I found, in one, a perfect insect, of about an inch in length, and less than three-eighths of an inch in circumference. The other was nearly equal to it in size, but in its larva state. The wood was entirely consumed for about two inches above the point where the insect made its ingress into the limb, which was

indicated by a small hole of the size of a pin. Although the wood was eaten away, the bark was left entire. These limbs were perfectly sound below the point of entrance, but in the others the disease seemed to be progressing towards the trunk. In a limb that I have just examined in reference to this point, I found some four inches of its extremity dead and dry. Below this point, I found some indications of life. I then cut it off at a point where the bark was fresh and green, and split it open. I found the pith and wood entire, but I discovered that strips of wood were discolored and evidently dead. while other portions of it were fresh. These dead strips diminished in size, terminating in a point. I next examined the lateral shoots that grew out from the diseased portion of the limb. These gave no external indications of disease; the bark being fresh and healthy and the buds full and plump. But on opening them, I discovered similar indications of disease, that were found upon the main branch, although to a less extent, giving evidence that the disease was progressing.

The first yard that I visited in this state, in which the pear tree was affected with the blight, was some eight years since. The yard contained some eight or ten trees, nearly half of which were diseased. In some, the disease was found only in the branches; in others, it had extended through the limbs and body to the ground, and life was nearly extinct. One that I examined was diseased to within eighteen or twenty inches of the ground. Below the point affected, a healthy looking shoot had started out from the body, some three or four feet in length. The trunk of this tree was, at my suggestion, sawed off just above this shoot, which is now quite large, and gives promise of making a fine tree. From others, I advised the proprietor to cut off all the diseased branches. Although somewhat faithless, he did so, with those that were the least affected, and the trees recovered, while those that were left untrimmed, died the next season. The proprietor remarked, that the disease was confined to one variety of the pear, (the French Jargonelle.) I went into another part of the yard, containing a summer Bonchretien, and I saw a twig some six or eight inches long, standing in the crotch of the tree, whose leaves were withered and dry. On examining it, I found the bark around the twig dead. I carefully cut it out, as far as it appeared diseased, laying bare a spot as long as my two hands, and the disease made no farther progress.

Some two years after this, another neighbor wished me to examine his pear trees. I found three of them very much diseased, and one was nearly dead. The others, I thought, might possibly be saved by severe pruning. Those that he pruned are still alive, and he has strong hopes that they will survive the shock. He told me that he first discovered these trees in the morning after a pretty heavy frost, and concluded that the leaves were killed by it, although it appeared strange to him that no other tree in his yard was similarly affected.

Last summer I called upon another neighbor, who had a fine seedling pear. The tree appeared uncommonly healthy and vigorous, and the fruit large and beautiful. Some few days afterwards, I learned that he had lost the tree by the blight. A month or so after this, I saw him and asked him if it was true that his pear tree was dead. He informed me that it was now apparently as healthy as it ever was. On making farther enquiries, I gathered from him the following facts. The whole foliage of the tree became suddenly, (he thinks within a single night,) withered, as if the fire had passed over it; the ends of the limbs were withered and apparently dead, and the fruit, about two-thirds grown, shrivelled; he gave the tree up as lost. It finally shed its foliage, and appeared passed recovery. After this he took but little notice of the tree, till he discovered that it had begun to put out new leaves. It subsequently blossomed. This must have been as late, I should think, as September. The ends of the limbs assumed their usual size and vigor, and the fruit appeared as fresh and fair as before; though it increased but little in size, and never attained its full size. Having subsequently examined the tree, I could discover no indications whatever, that the tree had been diseased.

From the above statement, the following facts may be gathered. 1st. The attack of the disease is sudden. 2nd. The disease commences at the extremities. 3rd. Its progress, though more or less rapid, is towards the root of the tree, and the disease is fatal to its life, unless arrested. 4th. Amputation is a sure remedy. And 5th. The disease sometimes passes off without materially affecting the health of the tree.

The symptoms of the frozen sap blight are thus briefly stated by Mr. Downing. "First, the appearance at the season of winter or spring pruning of a thick, clammy sap, of a sticky nature, which exudes from the wounds made by the knife, the ordinary cut showing a clean and smooth surface. Second; the appearance, in the spring, on the bark of the trunk or branches, often at a considerable distance from the extremities, of black, shriveled, dead patches of bark. Third; in early summer months the disease fully manifests itself by the extremities shriveling, turning black, and decaying as if suddenly killed. If these diseased patches are cut off, the inner bark and heart wood will be found dark and discolored some distance below where it is fresh and green outside." In all the diseased trees that I have examined, (and they have been quite numerous,) for a period of more than twenty years, I have never discovered any one of these symptoms except those enumera-

ted under the third head, and which have been noticed in the examples I have given. While I would not call in question the truth respecting the other symptoms specified under the first and second heads, I am free to acknowledge that I am not a little skeptical respecting the insect, or the freezing and thawing of the sap, being the cause of the disease technically called the blight or fire-blight. That trees are sometimes killed by the sudden freezing and thawing of the sap, I have no doubt; but this occurs generally among nursery trees that have been forced by powerful stimulants into a rapid growth, and is not confined to the pear, apple, or quince, but the plum, peach and cherry are more subject to this casualty than either of them. The peach and some varieties of the plum, the Washington and Red Magnum Bonum for instance, are often destroyed, root and branch, when the pear remains uninjured. This has often occurred in my own yards. I have often lost whole rows of the plum and peach, but never a row of the pear, although I have occasionally lost a single tree. Now if the freezing and thawing of the sap, produces the blight in trees of larger growth, would not the same cause produce it in the peach, plum and cherry? Such it appears to me would be the fact: but no instance, I believe, can be found, when these latter kinds have been affected with the blight, technically so called, and I am inclined to think that we must look for other causes for the origin of this disease, which is so prevalent among us. May not some analogy to this disease be found in those diseases to which the human family are subject. Suddenly whole neighborhoods and districts of country are seized with the same disease, which is confessedly not contagious, and yet few escape—no local cause is found adequate to produce it, and yet a cause there must be, but the medical faculty have hitherto searched in vain for it, although it has found, at last, a home in the atmosphere. To the same source, in my opinion, are we to look for those causes that produce the blight in the pear, and no precaution whatever, I fear, will avail any thing as a preventive to the disease; but we must rely for the salvation of our trees upon the simple and generally efficacious remedy, that of cutting off those portions of the tree that are diseased at a point where the wood is healthy and sound. This, if done as soon as the tree is affected, and done thoroughly, will generally, if not invariably, save the life of the tree.

Note. The above article was originally designed for the "Horticulturist;" but as an article has recently appeared in that able periodical, taking substantially the same view of the subject as I have done, I send it to you for publication.

The best Manure for any plant is its own leaves.

Bees—Objections to commingling Swarms.

Mr. Editor—In your paper of Feb., 1847, I find a request for "information of the best enclosed Bee-house to domicil several swarms of Bees in one swarm, and the management of the Bees." Being somewhat interested in the culture of bees, I will barely state the conclusions I have derived from my own experience, and from careful observation and investigation. The practice of keeping bees in enclosed buildings, and allowing swarms to commingle; or even the *housing* of *hives*, is, in my opinion, detrimental to the health, prosperity and increase of the bees, and thereby greatly diminishes the profits that might otherwise accrue to the apiarian.

First, it is pretty generally acknowledged that in every colony of bees there is one queen; and that however large the colony, there can be but one; and since the increase depends upon the queen, it is not reasonable to suppose that one will be as productive as many. And further, a free circulation of pure air is necessary to the health of the bees, and also to prevent the formation of webs that are continually being spread for their destruction. Such are a few of the causes that have led to the abandonment of the housing system. As to the management of bees, I follow, and would recommend the plan of Dr. O. Reynolds, a bill of which envelopes this sheet.

Very respectfully yours,

A. G. MELVIN.

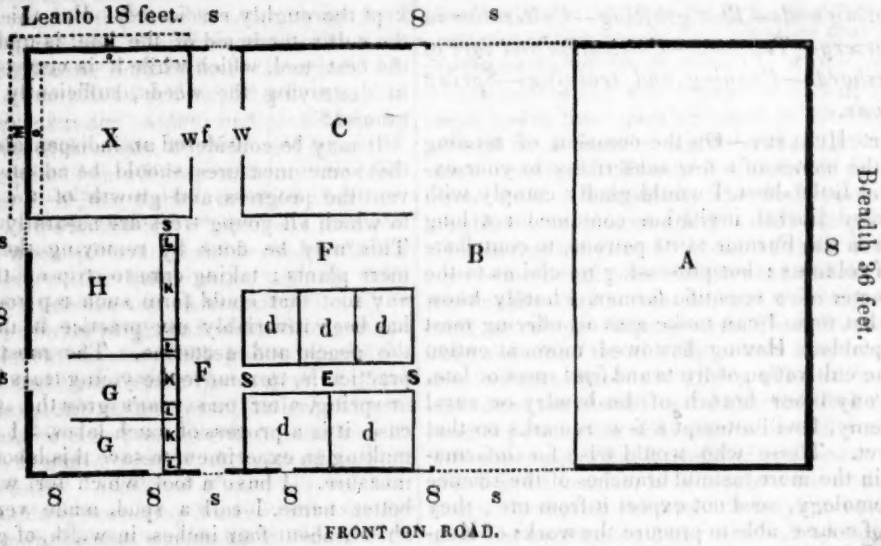
Webster, Monroe Co., N. Y., March 10, '47.

[The bill referred to represents Dr. Reynolds' hive as constructed on the following principles: "1st, Multiplying colonies by dividing, thereby preventing swarming. 2d, Removing honey without injury to the bees. 3d, Removing old comb when necessary. 4th, Preventing the depredations of the moth. 5th, Securing the bee against the robber." Highly favorable testimonials from distinguished agriculturists and apiarians in western New York, represent the hives as accomplishing what is claimed. At the annual Fair of the N. Y. State Agricultural Society for 1845, this hive received the premium as the best exhibited. We have seen the hive in operation, and from its mode of construction and management, consider it a highly ingenious invention, and see no reason why it should not, as we believe it does, rank among the very best that have been patented. Those wishing further information, would address "Dr. O. Reynolds, Webster, Monroe Co., N. Y."—Ed.]

Stocking down a sandy loam.—The Maine Farmer recommends the following mixture for laying down an acre of sandy loam soil to grass, viz: 10 lbs. clover seed, 1 peck of herds grass, and half a peck of orchard grass seed.

Plan of a Barn.

WHOLE LENGTH, 66 FEET.



FRONT ON ROAD.

A. Large bay, 20 by 36 feet.
B. Barn floor, 14 by 36 "
C. Space for storing wheat before chaffing, 14 by 15 feet.
d, d, d. Bins in granary. Granary 14 by 15 feet.
E. Hall through granary, 4½ feet wide.
F, F. Hall, 6 feet wide.
f. do. 4 feet wide.
G, G. Single stalls for horses or cattle, 5½ by 12 feet.
H. Double stall, 10 by 12 feet.
X. Chaff bin, 14 by 15 feet.
K, K, K. Mangers in stalls.
L, L, L. Feed boxes.
M, M. Mangers for feeding chaff.
o, o. Space 10 inches wide on the sill, and 14 inches at top, to admit the chaff to fall down into the mangers.
w, w. 6 feet space for putting chaff in chaff bin.
s, s, s. Doors.
8, 8, 8. Windows,—those on the end near the ridge.

The above draft is for a barn 48 feet by 36, leanto of 18 feet on the west end;—the height 18 feet, leanto posts 10 feet. Should more room be wanted, the leanto might be dispensed with, and the upright be 66 feet. which would afford much more room. The floor is lined throughout, except the barn-floor, which is narrow pine plank grooved and tongued, and stable floor is of oak plank, with a fall towards the back part of three inches to carry off the urine. The upper story is double floored all over, except the barn floor and bay, and a space 2½ feet wide directly over the manger in the stables, for the purpose of dropping down the hay, and receives it very conveniently from all the scaffolding above. The hall leading from the floor in front of the stables, by some might be considered a waste of room; but it is one of the most convenient parts of the barn—a fine place for fanning mill when drawing in grain or threshing, and an excellent place to put in a hundred bushels of wheat when threshing if the farmer should wish to thresh two kinds for seed before cleaning. It also affords a fine place for placing barrels with beans, peas, or any grains for seed, hanging up tools, &c.

The granary opens into the barn floor, and into the hall in front of the stable, and is very convenient to the mangers for feeding. The division of the bins in the granary is made by two small strips of board nailed to the sides, and boards dropped down in the grooves which are removeable at pleasure, throwing all the bins into two large bins, thereby rendering it convenient for filling bags, as two persons can step into the bins with bags and shovel, and fill in 30 bushels in 30 minutes.

The siding around the chaff bin comes down within 14 inches of the sill, affording room for the chaff to go out into the mangers from the bin, which is separated from it by a space of 10 by 14 inches as described in the plan. The siding is put on upright, and half matched, or ½ of an inch taken out of each corner, and thus forms a tight covering, proof against storms driving through, as there are no crevices, and it makes the barn warm in winter.

The barn stands upon a mortar wall two feet high. The granary should be secured by brick or mortar, or by plastering, to prevent the encroachments of rats, mice, &c. The above plan can be enlarged or contracted to accommodate the size of the farm.

J. C. MORSE.

Highland, Oakland Co. March, 1847.

Fruit Trees.

BY E. MORTON.

Planting seeds—Root grafting—Cultivation in nursery—Tap roots—Cultivation and care of orchards—Pruning and training—Spring frosts.

MR. HURLBUT—On the occasion of sending you the names of a few subscribers to your excellent little sheet, I would gladly comply with the very liberal invitation contained not long since in the Farmer to its patrons, to contribute to its columns; but possessing no claims to the character of a scientific farmer, I hardly know on what topic I can make a small offering most acceptable. Having bestowed more attention on the cultivation of fruits and fruit trees of late, than any other branch of husbandry or rural economy, I will attempt a few remarks on that subject. Those who would wish for information in the more tasteful branches of the science of Pomology, need not expect it from me; they are, of course, able to procure the works of Kenrick, Downing and others, who will ask them pay for their information. But it is undoubtedly, a lamentable fact, that a large proportion of the farmers of Michigan, as well perhaps as those of most other states, are very deficient in the information necessary to enable them to cultivate fruit trees advantageously, and if any experience or information which I possess, can be of service to them, they are very welcome to it. Still, I would counsel them to embrace every opportunity in their power, to extend their own information, and cultivate their own judgment, so as to be able to act for themselves, independent of any instructions from others.

The first thing to be done in the cultivation of almost any vegetable, is to plant the seed.—Three considerations are of importance in the process of planting fruit seeds, to wit: To avoid the depredations of moles, also of cut worms, and in case of fall planting, to take care not to plant in a heavy soil that will bake in the spring, and prevent the young plants from coming up. The depredations of moles are principally confined to their eating the seeds in the winter, when covered with snow. The remedy for this is, to plant in the spring, having prepared the seeds by freezing, during winter. To avoid worms, select a new and virgin soil, which requires no manure.

I will here take occasion to bestow a passing word on that system which would dispense with planting seeds at all, if you please, to wit: the root grafting, which has been so extensively practiced for a few years past. I will only say that I have done with it, except on a small scale perhaps, merely for convenience, having become convinced that trees propagated in that way, are very liable to canker, and cannot be depended upon to make healthful and durable trees, however fine and vigorous their growth for a time.

In the progress of cultivation in the nursery, no one needs to be told that weeds should be kept thoroughly eradicated. For this purpose, the cultivator in aid of the hoe, is undoubtedly the best tool, which while it is very efficacious in destroying the weeds, sufficiently stirs the ground.

It may be considered an indispensable matter that some measures should be adopted to prevent the progress and growth of the tap root, to which all young trees are naturally inclined. This may be done by removing them, when mere plants; taking care to strip off the end of any root that could form such tap root. This has been invariably my practice in the case of the peach and nectarine. The most common practice is, to remove the young trees in the fall or spring, after one year's growth. In either case, it is a process of much labor. I am about making an experiment to save this labor in some measure. I have a tool, which for want of a better name, I call a spud, made very like a chisel, about four inches in width, of good temper, and ground sharp, with a haft or handle some three feet long; the purpose of which is to cut off this tap root, and leave the tree standing in its place. This, however, is as yet matter of experiment, not having sufficiently tested its utility.

The next process we will consider, is budding, or inoculating, which I greatly prefer to any form of grafting, for small trees.

My views on this branch of the subject, were published in the Farmer, No. 2, vol. IV. This should be done in the apple or pear, the second or third year of the tree's growth. In the peach, invariably the first year, as late as safety will permit, say middle September. Plums, cherries, &c., should be budded when quite small, not only because one bud to the tree then serves, but it is much best for the general welfare of the tree.

We will pass on to the transplanting of the trees into the orchard or garden. And here, the best of all I can say, is, take great pains and care in every thing relating to the process. And if any one is about to set out an orchard, who has never had any experience in the case, he will do well to obtain the assistance of some one of nice and careful habits, who has had such experience. Mr. Downing makes ridicule of Americans talking of digging a hole to set out a fruit tree, and speaks of the English preparing their border, &c. This looks to us of the back-woods, a little overstrained. At any rate, I would dig a hole, and a liberal one, and fill it with rich and lively mould, perhaps mixed with twenty-five per cent of well rotted manure; set the tree about the same depth in the ground as it stood before, or a trifle lower is well, taking care to lay all the roots straight, and treading the ground hard, particularly if set in the fall, and raising a small mound about the tree, to steady it during the winter. Fall setting I pre-

fer for all kinds except the peach and nectarine. Correct judgment is necessary as to the time of taking up trees in the fall; if taken up too early, the head of the tree often dies. Two or three hard frosts should have occurred. If trees are set in plowed ground, little is to be said as to the cultivation (proper) except to keep the ground free from weeds, keep it well manured, and be extremely careful not to injure the trees in plowing. Ashes, plaster, urinized charcoal, and salt are undoubtedly excellent manures about the trees, particularly in dry soils. Mulch of shavings, rotten wood, chips, &c. is very important, while the trees are small.

If trees are set in ground stocked to grass—which should always be avoided when possible—keep a liberal space about them clear of grass and weeds, at all costs; spade the ground well at least once a year; manure well, mulch well, take care to guard against the depredations of mice in winter. A mound of sand is much better than nothing, spreading it away in the spring. Tar or milk, mixed with soot, or some fetid substance, spread on the trees, will do it.

I will now attempt some remarks on those branches of the subject—pruning and training: and I acknowledge that I approach the task with some misgivings as to my competency to do justice to the subject. In truth, there is nothing I ever undertake, which, as the wag phrase has it—"puts me up to all I know," more distinctly, than pruning fruit trees, notwithstanding. I have been accustomed to it these fifty years, and have had what I considered good opportunities of instruction. As to the little pruning necessary for young trees in their first year's growth, (except the peach family,) it is hardly worth mentioning. It consists chiefly in pinching off the ends of superfluous shoots, where more than one seem contending to become the main stock. The peach tree, which I have said should invariably be budded the first year, if your bud lives, should be severely pruned soon after; leaving stumps two or three inches long of the branches of any considerable size; which stumps are to be taken off smoothly the next year. This is a correct general principle in pruning. In after years, my practice has been to make a thorough business of pruning every tree to the extent my judgment dictates, once a year, and occasionally at other times; under the same dictate. The season which I prefer for this general pruning, is the early spring, before vegetation commences. Some would say in the decrease of the moon—others would say this is all superstition, (belief without evidence.) I shall not assume to act the umpire between them, not being fully satisfied in my own mind, whether nature's laws reach the case or not. I know very well, however, that my *buds* live much better when set about the full, than about the change of the moon.

I am aware that some eminent authors prefer summer and fall pruning. Few however, will advocate heavy pruning from April to August. To fall pruning, (leaving liberal stumps of the branches taken off,) I know of no important objections; in fact, there is one rather important consideration in favor, to wit: Early snows which fall before the foliage is fallen, often break young trees most disastrously, which may perhaps be in some measure prevented by previous pruning. The philosophy of pruning trees, besides consulting the symmetry and beauty, the balance and future well being of the head as regards form, is to consult also that reciprocity of action between the head and the root, which exists in all trees during the progress of their growing. The growth of the head, making a demand for the sap of the root, invigorates and stimulates it to active efforts to supply such demand: the root in turn, demanding of the head the reception and absorption of its sap.—To understand the relative requirements of each is a difficult matter, in which we have no distinct and tangible criteria. It is sometimes the case that by pruning away even a large share of the head, the remaining branches will grow more vigorously. This would be a case in which, for some cause, the head is more vigorous than the root. Again, by pruning even less, the remainder of the head will relax in its growth. This would be a case in which the root is the most active and powerful, and by reducing the demand upon it, which was inadequate before, the redundant sap in the root stagnates, and disease ensues. In all cases of excessive pruning, or heading down, (removing the whole head,) as in grafting and budding, there is great danger of disease and even death ensuing, on the principle above given. As a remedy in such cases, I take the liberty to suggest pruning the root at the same time, with a sharp spade, cutting off the roots in a circle around the tree, to the extent our judgment shall dictate. It can be attended with but little labor, and from reflection, I feel quite confident of its utility. It is a new idea with me, and I have not as yet had opportunity of any experiments. As to the matter of training, I have a practice no doubt somewhat peculiar to myself. No one will deny that it is very desirable to have young trees grow perpendicular and straight. When a tree is inclined to grow otherwise, I raise it to a perpendicular, and confine it there by means of a straight stick or sticks, stuck firmly in the ground, and in a sloping position, crossing the the tree, when the growth of the tree soon establishes it where it is held. This, it will be seen, is for small trees. For large trees, I have another method. When branches grow too perpendicular, I spread them at pleasure, by means of sticks forked at one end, and a deep notch cut in the other. Strong corn-stalks answer very well, by cutting them so as to form a fork at each end. By such means, I not only form the heads of trees much more to suit myself, but save many branches which would otherwise

have to be taken off, in consequence of interfering with others. Branches that incline too low, are easily raised by tying them up to the position wished, with bark, or other ligatures, to the main branch, or perhaps a stake. Cutting a few slashes across the limb where the bend takes place, will, when they heal, assist in keeping it to its place.

Many persons are much discouraged in cultivating fruit trees, from the fear of late frosts, &c., cutting off fruit in this part of the country. True, we have had two disastrous years in the four last, but we have also had two good years; and I hope very confidently, that as our country and our orchards grow older, we may be less liable to such disasters. For my own part, however, if I had no better hope than good crops half the years, I would consider the cultivation of fruit trees an important object. I consider the great object of life to be rational enjoyment —true happiness, and if there is not much to be enjoyed and hoped for in a fine fruit establishment, why, then I am laboring under a very great mistake. It will perhaps be said that it is but of the class of sensual pleasures. What else is the accumulation of property, which so engrosses the efforts and aspirations of the world? It is but the excesses of sensual pleasures that we should deprecate. I am prepared to contend too, that the moral tendencies of cherishing a a love for the right cultivation of our fruit plants, those beautiful emblems of that noblest of all terrestrial plants, the Human Mind, cannot be otherwise than to cultivate a love of what is right, and of what other material is virtue composed, than doing right from right motives?

St. Joseph, Berrien Co., March 1847.

P. S. I perceive I have omitted two considerations in the foregoing communication, which I consider of importance, to wit: In our country, of such constant and severe westerly winds as to bend the oaks very frequently to the east, we should take great pains in pruning and training our fruit trees, to give them a decidedly westerly balance and inclination; also, to form the heads low.

A third idea strikes me. I have neglected to insert a caution against excessive mulching; piling too much mulch about a tree, especially immediately after transplanting, will have the effect of preventing the heat of the sun from reaching the roots sufficiently, and thereby check the growth in the same manner as setting too deep.

Saving Manure.

BY A. HENRY.

MR. HURLBUT—I have just been reading an article in the Farmer, on making manure, in which an old farmer complains of the improved system of farming as being too expensive; and another on the construction of stables, in which the saving of the liquid manure is recommended. These things remind me of what I often meet with in trying to get subscribers for your paper. They say that to follow the plans laid down in the Farmer, would require too much capital. Now for the benefit of such who are afraid to pay in advance for their crops, I will propose a plan even cheaper than the one adopted by the author of the article referred to. I do not know where he lives, and consequently know nothing about the state of affairs there; but we all know that in this new country, most of the farmers have no barns or stables, and some have not so much as a hovel for their cattle to run under, only a yard to keep them in. Now we see most of the farmers allow these yards to remain unoccupied during the summer, or if they are occupied at all, it is for the purpose of yarding their cows o' nights. What I wish to say then, is, let these yards be large, and in good shape, so that they can be plowed; have the manure all hauled out on to the farm, plow the yard and plant it to something that will come off before it is wanted for winter use again; and though this may not be the best way to manage, I think it much better than to follow the example of the majority of our Michigan farmers, and let the manure remain all summer for the hogs to wallow in, and create fleas.

I consider the saving of manure of so much importance, that I will carry my plan a little farther. In addition to the barn yard, I would propose to build two extra ones near the house; keep one for a milk yard, and the other for a farm garden, and change them every year.—This makes a rich garden with but little cost, and besides, leaves the ground cleaner from weeds than when enriched with barn-yard manure.

Columbia, Jackson Co., March 16, 1847.

[Mr. H., gives a good idea here, and one which we have seen carried out with manifest advantage, especially in the raising of roots.

With respect to the plans recommended in the Farmer, requiring more capital and leisure than falls to the lot of settlers in a new country, it is true that some of them do; but it is to be remembered that the paper circulates as well in counties that have been settled from 20 to 50 years, as in those which are fresh from the hand of nature; and as well among farmers of abundant, as those of limited means. Of course, it is the editor's business, as far as possible, to insert matter adapted to the circumstances of all. In our endeavor to do this, one article will suit one, another another, and the only way is for each to appropriate what is useful to him, and let the rest go.—ED.]

In Belgium, where agriculture is carried to the highest perfection, no man would pretend to be a farmer without clover.

How to get rid of Sorrel.

BY A. HARRISON.

Mr. Hurlbut—I would like to tell the readers of the Farmer how they may easily get rid of their sorrel, and have clover in its stead.

Draw your long manure, and spread it over the sorrel as thick as you can conveniently plow under; plow it under as deep as you can conveniently plow, and as early as you can in the spring. About the 10th of May, run a cultivator over it, then mark it out and plant it with corn, the rows running both ways about four feet apart. As soon as your corn gets up so that you can see the rows, put a cultivator through it once in about ten days, until you have been through it three times, twice in a row. About the middle of July, put in about ten pounds of of clover seed to the acre; then go over it again with the cultivator, twice in a row. You will have clover in the place of sorrel.

In plowing straw under, I take a fork and follow the plow, filling the furrows. In that way you can cover it completely up. Manure plowed under in this way, and suffered to decompose in the earth, is much the best, as it will manure about three times the quantity of land that it will to let it lie and rot in the yard, as most farmers are in the practice of doing. You would do well to get Harrison's Cultivator, as neither long manure nor sod will clog them.

Blissfield, Lenawee Co., March 2d, 1847.

[Will Mr. Harrison give us the particulars of his experiment of sowing 60 acres of wheat among corn, what was his time and method of sowing, what kind of corn was it, and how did the plan succeed? Do you, on the whole, like the method, and if so, how far would you recommend it?—Ed.]

Account of an experiment in raising Potatoes.

BY A. WILLIAMS.

Mr. Editor—Believing that the publication of an account of an experiment tried by myself in raising potatoes last season, would be of some utility to the readers of your valuable paper, I have concluded to reduce it to writing, and send it to you for that purpose. It is substantially as as follows:—

When planting potatoes, some time in the last of May, I selected from among several bushels, 120 of the largest size. These were planted in two parallel rows of equal length; the rows being not more than 3 feet apart. In planting one row, I made the hills 3 feet apart, putting one *whole* potatoe into each hill; and in planting the other, I made the hills 18 inches apart, putting *one-half* of a potatoe into each hill.—There was no material difference in the cultivation of the two rows—both being hoed but once, and at the same time.

With reference to the yield, I would say, that when they were taken out of the ground in the fall. I carefully measured the product of each row, and found that the row, in the planting of which *whole* potatoes were used, yielded a very little over 3 bushels; while the other yielded a very little over 3¼ bushels—a result which goes to show that economy, both in seed and ground, requires not only that *large* potatoes should be cut prior to planting, but that the hills should be close together.

In conclusion, I would say that with regard to the *size* and *quality*, I was unable to discover any difference between the products of the two rows.

Otisco, Ionia Co., Mich., March 9, 1847.

Mountain Ash.

BY R. G.

[*Extract from a letter.*]

I want to inquire if you know where the Mountain Ash, (*Sorbus Americana,*) grows spontaneously. If not, will it be asking too much to request of your subscribers to answer the question through the farmer? I have reason to believe that the bark of the tree is a valuable remedy in cancer. Two have died with that painful and loathsome disease in three months in my ride, and two more are far gone with it. If I could find the ash, I think I might do good with it.

Oakland Co. March 11, 1847.

Useful Rules.

To find the number of bushels and barrels in a given number of cubic feet.—Multiply or divide by the following numbers, and the result will be in whole numbers and decimals.

Divide the number of cubic feet by 1.6, and the quotient will be the heaped bushels.

Multiply the cubic feet by the fraction 4-5 and the product will be the stricken bushels.

Multiply the cubic feet by the fraction, 2375, and the product will be the number of barrels.

Example.—Given a box 5 feet long, 5 feet wide, and 4 feet high, to find the contents in bushels and barrels.

The length, breadth and height multiplied together give the contents 100 cubic feet. This divided by 1.6, gives 62½, the number of heaped bushels. 100 multipled by 4-5 gives 80 stricken bushels. 100 multiplied by .2375 gives 23¾ barrels.—*N. Y. Farm. & Mech.*

Corn-cob Meal.—The value of the cob when ground into meal with the corn is owing more to its reducing the nutritive qualities of the corn, than to the amount of nourishment contained in itself. In corn alone, the nourishment is in too concentrated a form for the most profitable use;—the cob meal, as it were, dilutes it, and renders it more healthful for all animals, especially for horses and cattle.

Houses of Unburnt Brick, and Gravel and Lime.

Two methods of constructing houses, one of ancient, the other of recent date, are so highly recommended in some quarters, that a brief description will probably not be uninteresting to our readers. They are especially suited to localities where other building materials are scarce.

UNBURNT BRICK HOUSES.—These are constructed of bricks made of the same material as common bricks—clay and sand—but much larger. When the wall is designed to be a foot thick, the size is commonly 12 inches long, 6 inches wide, and 6 inches deep, Some prefer to have them 18 by 12, by 6. The materials should be well worked in the usual manner, and prairie hay or straw added, chopped into lengths of 6 or 8 inches. The shape for moulds used in Chicago, is a box of the size of the brick—the sides the longest way projecting at the end of it far enough to fasten a cross piece at each end to carry the box off to the yard by, to deposit the brick to dry. The bottom of the box slides in and out in an easy groove in the side pieces, and when the brick is laid upon the yard with the top side of the mould down, the bottom is drawn out, without disturbing the mould or the brick in it.—When the bottom is removed, the mould is evenly raised, leaving the brick on the ground in good shape to dry.—The bricks will dry sufficiently in a day of good weather to handle, when they should be turned up on edge, and the day after, on end. The third day they may be packed in a pile, and covered with boards, to protect them from the rain. In ten or twelve days they will be dry enough to use.

The foundation of the building should be of stone, and raised two feet above the surface of the ground, to prevent dampness from ascending to the walls above. In laying the brick, the same material out of which they were moulded, is used for mortar. The partition walls between rooms are carried up at the same time with the outer wall, and are of the thickness of the brick, 6 inches. The roof should be made to project over the sides of the house, from 2 to 2½ feet, except of course, on those sides where there is a porch. This is to defend the wall from vertical rains, before it is thoroughly dry. When a porch is to be attached to the wall, scantling should be laid into the outer face of the wall to fasten it to. The house should be built early in the season, to give time for the walls to dry thoroughly before October, when they should be plastered on the outside with such mortar as is suitable for the first coat on an inside wall. Some builders put on two coats, others one, others none at all: but it is considered advisable to plaster. After plastering, the wall should be pebble-dashed. The inside is plastered like that of any other house, but no lathing is required on either surface.

The advantages claimed for this kind of houses, are,

1. Cheapness. The cost of erecting the walls being only 5 or 6 cents the cubic foot, exclusive of plastering, which costs on both sides, between 2 and 3 cents more, for a wall a foot thick, making the entire cost of the finished wall, 8 cents a foot.

2. Comfort. These houses are cooler in summer, and warmer in winter, than any other house, unburnt brick being a non-conductor of heat. All the walls being solid, too, there is no harbor for mice, or other vermin, and they are very dry.

3. Neatness and durability. When well made, they are said to look remarkably well, and to stand for centuries.

The objections made to them, are,

That the plaster has, in some cases, not adhered well. This is accounted for from its having been sometimes put on before the walls were dry, and sometimes from there having been an excess of lime in it.

Some walls have had so little hardness that rats have burrowed in them. The bricks, in such instances, were composed of bad materials, or were not well tempered.—There could be no danger of this after the walls were well plastered.

The instances of failure that have occurred, are thought to have been owing to the mismanagement of the builder. Certain it is, there have been many examples of complete success. This style of building, however, is better adapted to cottages of one story, or a story and a half, than to houses of greater elevation.

HOUSES OF LIME AND GRAVEL.—This kind of houses was originated in Wisconsin, and is made of fresh burned lime, and coarse gravel, in the proportion of one bushel of the former, to twelve of the latter. The lime and gravel are put into a tight box, and water added sufficient to make the mass of the consistency of thick mortar.

On a stone foundation laid below the frost, place planks edgewise, fastened together by clamps at a distance apart corresponding to the intended thickness of the wall. Arrange these plank curbs quite around the foundation, and fill in with the gravel mortar, taking care to spread it with a trowel so as to leave no vacancies. In good weather, 24 hours will suffice to dry the mortar sufficiently to admit of raising the curb, and commencing another course. Ten or twelve inches of wall around the building will be made in a day. The window and door frames are set in the wall inside the curb. The wall can be plastered without lathing. Cobble stones can be used in the mortar of which the wall is made, provided there is fine gravel enough to fill up between. Like unburnt brick houses, these should be built early in the season, in order to have time to dry thoroughly before cold weather sets in. Almost all kinds of buildings, and even fence, can be built in this way, and at an expense, it is asserted, of five cents to the cubic foot, where lime is 12½ cents a bushel, and gravel at hand. In process of time, the whole wall becomes one conglomerate rock, so solid that the gravel stones will break in two when struck with a hammer, instead of being loosened from their bed. We would suggest the expediency of adding one bushel of ground plaster to every four bushels of lime, to make the wall dry faster.

The above descriptions have been condensed from Ellsworth's Reports, and our exchange papers.

Cows.

BY F. BELDING.

MR. EDITOR:—As the season is at hand for cows to come in, allow me to suggest through the columns of the Farmer, a mode of treatment which I do not recollect ever seeing in print. If I had known it twenty-five years sooner, it would probably have saved me more than the subscription price for the Farmer for forty years.—Every farmer knows the deleterious consequences of cows going a long time after calving before cleaning; indeed I have nearly lost the use of valuable cows for the season.

The remedy is, immediately after calving to give from two to four quarts of dry oats;—barley will do, but I prefer oats, because they are lighter feed. Try it, and I will venture to say, in nine cases out of ten, if not ninety-nine out of a hundred, it will have the desired effect.

Troy, Oakland Co. Feb. 27, 1847.

DURABILITY OF OAK TIMBER.—It is a matter of common observation, that the oaks of the West afford far less durable timber than those of the Atlantic states. The following remark which we meet with in the essay of E. Clark A. M. read before the Agricultural Association of New York, will, perhaps, afford some explanation of the cause.

"Those (oaks) which grow in an atmosphere charged generally with sea-water, or in a soil slightly impregnated with the chlorate of soda, (common salt,) and which, consequently, contain salts of that material, are far less perishable than those produced under different circumstances, and which assimilate the salts of potash instead of those of soda."

A ROYAL FARMER.—At the Christmas cattle show of the Smithfield Club, London, Prince Albert obtained five prizes—four for oxen, and one for pigs.

EDITOR'S NOTE BOOK.

☞ This number is sent to some of our former subscribers and others, who have not yet given us their names for the ensuing volume. It is hoped they will not only continue their subscriptions, but that each will use his influence in the useful work of extending the circulation of the Farmer in his neighborhood.

We return our thanks to those friends in various parts of the state, who have so kindly and efficiently lent us their aid.

Apology.—After some delay in the issue of this number, we are obliged to put it to press without the arrival of the paper and type which have been sent for, and which will be used for the rest of the volume. Our friends must have patience, as we have done the best we could. Hereafter, we know nothing that will interfere with the issue of the paper early, and in such a style of execution as will be satisfactory.

Hints for the Season.

Preparing a foul soil for planting.—If it is desired to plant a piece of ground which the summer previous was plentifully stocked with the seeds of weeds, the following method will save much labor and trouble, and at the same time increase the crop. Early in the spring, or at least some three or four weeks before the time for planting, let the ground be plowed shallow, or if the soil be light, a thorough harrowing with a sharp harrow may answer. The object is to cover lightly the seeds of weeds with which the ground is strewn, and cause them to vegetate. By the time the ground is plowed for planting, the weeds will be nicely up, and will cover the ground. Turn them under deeply, and their race is ended. They will thus be made to constitute a good dressing to the soil instead of being an annoyance to the cultivator, and an injury to his crop. In this way a large portion of the weeds may be destroyed before planting.

The above method is believed to be preferable, in the case supposed, to a deep ploughing in the first instance; for then, unless the seeds of weeds are buried quite too deep to vegetate, they will spring forth, legion after legion, during the course of the summer.

Planting Potatoes.—It should be borne in mind that one of the most effectual preventives of the potatoe rot is early planting. Added to this is the use of ashes, charcoal, lime and plaster, applied with the seed, and the selection of those varieties which have shown themselves least likely to be affected. Avoid the Neshannocks, (Mashonics.)

Before planting, it is advisable, as an ordinary rule, to plow twice—the first time deep, the second shallow—dropping the seed in every third furrow at the second plowing, and covering it with the succeeding furrow.—Plow this time in narrow lands. This method would be worthy of unqualified commendation, were it not for the danger of rot. Where this is apprehended, (and it probably may well be expected, from its history elsewhere, to prevail more widely here the ensuing season than ever before,) the above plan is suited only to very dry fields. On all others, it would be better, on this account, to plant on or near the surface, in hills, and to hill up a good deal in the subsequent cultivation; for the experience of the past season proved that fields treated in this way turned out much sounder crops than others close by in which the seed was buried deeper, and the cultivation was nearly level.

Root Crops.—To those farmers who are not in the habit of cultivating root crops, other than potatoes, we would suggest that a piece of land be reserved on which the trial may be made. The cultivation of ruta bagas, carrots, parsnips and beets, always of much advantage, becomes of increased importance as the potatoe rot extends more widely. The value of carrots for horses, and of all these roots for cattle and sheep, is admitted by those familiar with their use to be very great, especially in contributing to the health of those animals by furnishing succulent food to mix with the dry during the long season of foddering. The great secret of raising these roots with ease and profit, is to sow them on clean ground in rows, go through early with cultivator and hoe, and never suffer the weeds to get an inch high until the vegetables have grown large enough to protect themselves. The best land for the crops referred to, is that which was well manured the year before, planted with corn and kept clean. If fresh manure is applied, the roots are apt to be cankered and unsound, besides the greater trouble with weeds.

Plowing Sward Land.—With grass lands, no matter of what description, the sod rots sooner when the plowing is deferred until vegetation has well started, than if it be done before. In the former case, the juices with which every part of the plants is filled, assist decomposition, and the consequent enriching and mellowing down of the soil to a condition favorable to a growing crop. The difference, as is well known, is greater on new lands, prairies and oak-openings, than on lands well stocked with the cultivated grasses.

Adaptation of Grasses to Soils.—Sowing the kinds of grass seed which are best adapted to the soil, is a thing not always attended to. Out of more than a hundred different varieties enumerated by botanists, nature has no doubt provided some peculiarly suited to every variety of productive soil; and it is a wise exercise of judgment for every farmer to ascertain and select such as are most proper for his use. He that sows timothy or clover on a marsh-meadow imperfectly drained, or red-top or timothy on light, dry upland, will receive a poor reward for his labor. We need to have experiments instituted to find out the best substitutes for timothy on the soil of the oak openings, to intermix with clover. Orchard grass and Italian Rye grass, have been partially tried, and appear to promise well; but the experiments have not yet been numerous and varied enough to determine definitely their merits.

In England, it is not uncommon to stock down lands with six or eight kinds of grass; a variety of herbage being considered advantageous to the health of pastured animals, and the coming forward of different kinds at different seasons, forming a desirable succession. The land, too, is thought to produce more food when bearing grasses of various habits of growth, as the surface in that case is more completely occupied, and one plant draws more on one component of the soil, another on another. In our country, this point has received comparatively little attention.

Post Office Regulations.

As publishers are prohibited, by the existing Post Office laws, from enclosing receipts to subscribers with their papers, we shall be obliged hereafter to forward them, if at all, by letter. Those wishing them so sent, will please mention it in the letter containing the remittance. Where several names are forwarded at once, the receipts for all can be enclosed in one envelope with single postage.

KEEPING CATTLE IN CELLARS.—It is said that cattle stalled in warm barn cellars have been found to grow sickly—that they take cold when let out to drink, which settles in the head and causes them to run at the nose—that sometimes horses have become diseased in similar situations, and as is thought from the same causes. The injury is supposed to result from a combination of causes—dampness, ill ventilation, foul air arising from accumulated manure, too great warmth, and lack of exercise.

CHARCOAL.—A peck of pulverized charcoal around each peach tree, has been found to improve greatly the bearing of the trees, as well as the quality of the fruit.—It also makes the trees healthier and longer lived.

Back Volumes of the Farmer for nothing.

By reference to the terms below, it will be seen that the publishers, besides placing the present enlarged volume at a low rate, offer the back volumes as premiums literally for nothing. These will be found to contain a mass of information embracing many valuable facts always useful for reference, and interesting as connected with the history of agriculture in the state. They will be supplied according to terms *while they last.*

☞ A few travelling Agents wanted, to extend the circulation of the Farmer, especially in the eastern counties of the State. Good references required.

CONTENTS OF THIS NUMBER.

Market Intelligence.

DETROIT, April 10th. 1847.

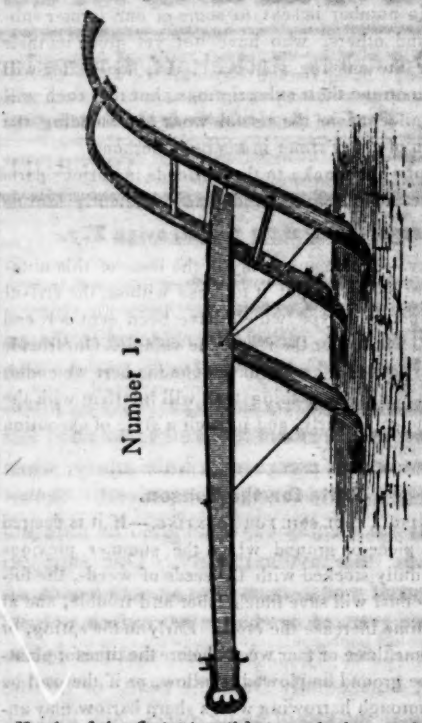
FLOUR.—The eastern news caused a slight improvement today, though sales have been light, there being little disposition on the part of holders to sell at present prices. Sales of *straight* brands, (from good mills) at $4,45. There are estimated to be 250,000 bbls. in store in this city awaiting shipment, and freights will doubtless continue high for some time after the opening of navigation—probably $1,30 per barrel to New York. In the summer the usual rate is about 90c

PROVISIONS.—Beef, mess, bbl $6; Pork, mess, $14; prime, $9; Hams, city cured, extra, 7 to 8c; ordinary, 6 to 7c; Butter, roll, 12½c; firkin, 9 a 10c; Lard, lb bbl 7 a 7½c.

NEW YORK, April 5th.

FLOUR.—The supply is small, and there have been moderate sales of Michigan at $7.75, holders demanding $8. The packet ship Columbia has just arrived from Liverpool, bringing large orders for American produce, and still further orders are expected to be sent. In England, wheat has advanced 2s (sterling) per quarter,(560 lbs.) Western canal flour at 42s 6d. Corn and corn meal are in active demand for Ireland.

HARRISON'S IMPROVED SHOVEL-POINTED CULTIVATORS.



Number 1, is a first rate article to use in the corn-field, instead of the plow and hoe.

Number 2,* will answer the same purpose, and for cross plowing with a single horse.

Number 3, will supersede the necessity of having a cross plow or a drag. This answers the purpose of both.

Those who farm it on the improved methods, will find these cultivators a vast improvement. I have tried them sufficiently to satisfy me in regard to their value.

JONATHAN LAMB.

Waterloo, March 30, 1847.

The advantages of this unrivalled cultivator, have the past season, been fully and faithfully tested, and it is by common consent, admitted to be by far the best cultivator now in use. They are manufactured at Blissfield, Lenawee County, Michigan, and can be obtained at reasonable prices at Monroe, Adrian, Jackson, Maumee, and most of the towns in Michigan, and Western Ohio.

Jonathan Lamb, of Waterloo, Jackson County, is the regularly authorized agent for selling the rights to manufacture said cultivator for the Western States.

ALMOND HARRISON.

Blissfield, April 3. 1847.

*Cuts No. 2 and 3, are too large for insertion in this number. —*Ed.*

MICHIGAN FARMER.

VOLUME V.—NEW SERIES.

PUBLISHED BY WILLIAMS AND HURLBUT, DETROIT.

H. HURLBUT, EDITOR.

TERMS.—One copy for 50 cents—Five copies for $2—Eight copies for $3—and at this last rate for any larger number; payable in advance. Subscriptions commence with the volume. Letters containing remittances in current bank bills may be sent at the risk and expense of the publishers.

PREMIUMS.—Any person sending $1, post-paid, shall receive two copies of Volume V., and a copy of Volume I, II or IV, at his option. Volume III is exhausted.

A remittance of $5, shall entitle the sender to twelve copies of Volume V, and one copy of Volume I, II and IV each; or thirteen copies of Volume V, and a copy of Volume IV. The premiums will be sent by mail unless otherwise ordered, and will be subject only to newspaper postage.